

**UNCLASSIFIED**

**AD 490044**

**DEFENSE DOCUMENTATION CENTER  
FOR  
SCIENTIFIC AND TECHNICAL INFORMATION  
CAMERON STATION, ALEXANDRIA, VIRGINIA**



**UNCLASSIFIED**

NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.

## UNANNOUNCED

⑤ Iowa State Univ., Iowa 5 cps 9/5/58  
City.

— 1 —

1338  
1 ✓

copy 4/9/0044  
AS

**ASSESSMENT OF A VOCATIONAL INTEREST INVENTORY AS A PSYCHIATRIC SCREENING TEST**

By

ARTHUR L. BENTON and HAROLD P. BECHTOLD

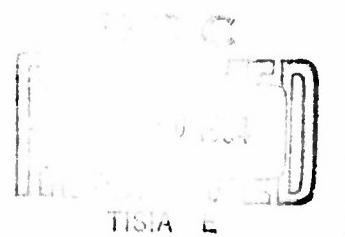
Contract Nonr 311(00), Project NR 151-075

## "Research on Aptitude-for-Service Tests for Enlisted Personnel"

**Office of Naval Research**

**DEPARTMENT OF PSYCHOLOGY**  
**STATE UNIVERSITY OF IOWA**

1 AUGUST 1958



## I. INTRODUCTION

The Clark Vocational Interest Inventory (4) has been developed for use in the classification of enlisted men for various naval specialities. It consists of 190 triadic items, the responses to which are scored in terms of keys corresponding to these specialities.

The hypothesis on which the present investigation was based is that it would be possible to develop a special key from the responses to the Inventory which would predict personal adjustment to the Naval Service. This hypothesis was based on the following considerations:

- (1) Incidental findings in the past suggested that certain vocational and avocational interests may be related to personal adjustment in both civilian and military settings.
- (2) To date there had been no systematic exploration of this area with respect to its possible predictive significance for military adjustment.
- (3) For purposes of assessing adjustment, a vocational interest inventory appeared to be a less obvious type of instrument than the direct personality questionnaire and thus might be less subject to the effects of distortion because of attitudes of simulation, exaggeration, defensiveness and dissimulation.
- (4) An "adjustment" key on a bona fide vocational interest inventory, which had been developed for classification use in the Navy might find particular use in conjunction with the vocational interest keys in effecting appropriate placement.

## II. PROCEDURE

The Vocational Interest Inventory was given to approximately 1700 recruits at NTC, Great Lakes, in January-March, 1952. The Inventory was given to a second group of approximately 1600 recruits at NTC, Great Lakes, in January-March, 1953.

In 1957, abstracts of the medical records of these men were secured and evaluated in the manner which has been described in previous reports (1, 2, 3).

For purposes of analysis, attention was focused on the test performances and records of 1226 men who were classified into the following test and criterion groups:

1952 TESTING

Group N: 490 men, with at least two years of satisfactory service, who had received an honorable, non-medical discharge, whose disciplinary records showed no offenses and whose medical records showed no indications of extensive hospitalization or frequent sick calls, and included no marginal comments suggesting minor or temporary personal maladjustment.

Group D: 71 men who had received either medical, "unsuitability" or "inaptitude" discharges because of personal inadequacy, as indicated by a variety of designations, e.g., emotional instability, immature personality, passive-aggressive reaction, schizoid personality.

Group R: 118 men who were noted as having reenlisted. In most cases, it was evident that they had reenlisted for a second tour of duty. However, in a number of cases, it was not clear whether they had continued on active duty or had reenlisted in the Inactive Reserve.

1953 TESTING

Group N': 390 men with the characteristics of the members of Group N.

Group D': 52 men with the characteristics of the members of Group D.

Group R': 105 men with the characteristics of the members of Group R.

The triadic items of the Inventory are responded to in terms of that alternative among the three which the subject would most like and that alternative which he would least like. The third alternative automatically assumes an intermediate position in the subject's preference hierarchy. Only the "Like" and "Dislike" responses were considered in the present analysis. Since each alternative could be marked as "Like" or "Dislike", a total of 1140 responses, i.e., six responses for each of the 190 triadic items, were analyzed. The relative

frequency of each of these 1140 responses in the normal (N) and deviant (D) groups in the 1952 testing was determined. Fifty-seven responses for which there was a difference in relative frequency of 15 per cent or more between the two groups were found. Since this difference in relative frequency is significant at the .01 level of confidence, it could be assumed that only 11 or 12 such responses should have occurred by chance. Accordingly, the construction of a scoring key involving these 57 responses appeared to be justified.

Such a key was devised by giving a weight of 1 to each response for which the relative frequency in the normal group was higher than that of the deviant group and a weight of -1 to each response for which relative frequency was higher in the deviant group. This key was then applied both to the groups in the 1952 testing and to the groups in the 1953 testing, the latter serving as cross validational samples.

In the original determination of relative frequencies of responses in the normal and deviant groups in the 1952 testing, it was found that 28 responses showed a differential relative frequency of 20 per cent or more in the two groups. Since this difference in relative frequency is significant at the .001 level of confidence, it could be assumed that only 1 or 2 such responses should have occurred by chance. Therefore, a second scoring key involving these responses, similar in nature to the previous key, was also constructed and applied to the original and cross-validational groups.

#### RESULTS

The Means and S.D.'s of the scores obtained in the original and cross-validational samples when the "15 per cent" scoring key was used are shown in Table I A. It will be seen that while, as expected, the key differentiated the original samples, it completely failed on cross validation, the observed difference in means between the normal and deviant groups being in the predicted direction but nonsignificant. The scores of the reenlistment samples are quite comparable to those of the normal samples.

TABLE I.

A.

Scores of Normal, Deviant and Re-enlistment Groups on "15 per cent" Key

	<u>Original Samples</u>			<u>Cross-Validational Samples</u>		
	<u>Normal</u>	<u>Deviant</u>	<u>Re-enlist</u>	<u>Normal</u>	<u>Deviant</u>	<u>Re-enlist</u>
Mean	29.76	20.89	29.08	29.83	27.06	29.28
SD	11.15	9.96	9.14	9.11	9.89	10.03
N	490	71	118	390	52	105

B.

Scores of Normal, Deviant and Re-enlistment Groups on "20 per cent" Key

	<u>Original Samples</u>			<u>Cross-Validational Samples</u>		
	<u>Normal</u>	<u>Deviant</u>	<u>Re-enlist</u>	<u>Normal</u>	<u>Deviant</u>	<u>Re-enlist</u>
Mean	14.22	8.52	12.98	14.45	12.79	14.13
SD	4.96	5.59	5.47	4.77	5.34	5.09
N	489	71	132	391	52	105

The Means and S.D.'s of the scores obtained in the original and cross-validation samples when the "20 per cent" scoring key was used are shown in Table I B. Again it is seen that the key failed to differentiate the cross-validation samples, the observed difference in means between the normal and deviant groups again being in the predicted direction and nonsignificant.

Because of this failure to validate the empirically derived keys, a third key containing 104 responses was developed on the basis of clinical judgments of the diagnostic significance of the responses. Scores based on this key failed to differentiate the normal and deviant groups in either the original or cross-validation samples, although in each instance the observed difference in mean score was in the predicted direction.

#### DISCUSSION

In view of the large number of initially discriminating responses, the failure of the empirically derived keys to differentiate between the normal and deviant groups in the cross-validation samples was unexpected. While some shrinkage in discriminative power was anticipated, shrinkage to the point of a lack of significant differentiation was not.

No really satisfactory explanation for this negative finding can be advanced. An internal analysis of the "15 per cent" key disclosed that there were a number of items in it which differentiated between the normal and deviant groups but which correlated negatively with total score. This finding raises the question as to whether one or more homogeneous keys might not prove to be more effective than the keys which have been derived. Dr. Kenneth E. Clark is planning to investigate this and other modifications in scoring procedure with respect to their effectiveness in differentiating between the normal and deviant groups.

REFERENCES

1. Benton, A. L. Research on aptitude-for-service tests for enlisted personnel. Progress Report, Contract Nonr 311(00), Project NR 151-075, Office of Naval Research, March, 1954.
2. Benton, A. L. and Bechtoldt, H. P. The Enlisted Personal Inventory (Part I) as a predictor of personal adjustment after recruit training. Bureau of Naval Personnel Technical Bulletin 55-6, 1 June 1955.
3. Benton, A. L. and Bechtoldt, H. P. A new aptitude-for-service test (multiple choice sentence completions). Contract Nonr 311(00), Project 151-075, Office of Naval Research, 15 March 1958.
4. Clark, K. E. Measurement of interest patterns of naval personnel. Project NR 151-248, Office of Naval Research.

**UNCLASSIFIED**

**UNCLASSIFIED**